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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/935,533

08/23/2001

Linghsiao Wang

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03/30/2005

LAUBSCHER SEVERSON

1160 SPA RD

SUITE 2B

ANNAPOLIS, MD 21403

EXAMINER

CHANG, RICHARD

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,533

Applicant(s)

WANG ET AL.

Examiner

Richard Chang

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7, 24, 25, 34 and 35 is/are rejected.
7) ☒ Claim(s) 8-23, 26-33 and 36-37 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/23/2001.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 34 and 35 recites the limitation "... in claim 24, freed memory space to a Cos ..." in line 4, parent claim 34. There is insufficient antecedent basis for this limitation in claims 34-35.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 6-7 and 24-25 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US patent No. 6,687,247 ("Wilford et al.").

Regarding claim 1, Wilford et al. teach an apparatus and method enabled utilizing efficient shared memory subsystem for all network layer (IP layer) activity with high speed class of service communication device (data network node) (See Fig. 2, Col. 27, lines 55-59) capable of switching IP packets (Protocol Data Units as PDUs) between

a plurality of input and output data ports (210) interfacing to networks wherein each IP packets (PDU) having a header storing header information and a payload storing at least a portion of data to be conveyed the data network node comprising of

a. a processor (440) switching IP packets (PDUs) from inbound queue manager (240) to outbound queue manager (280) (See Fig. 4, Col. 5, line 47 to Col. 6, line 5),
and b. a combined shared memory including:

i. an input FIFO (315) using SRAM (See Fig. 3, Col. 7, lines 8-9 as reserved temporary memory storage portion) for holding, while pending a preliminary inspection of the header information prior to queuing, IP packets (PDUs) received via an input port of the plurality of data ports (210) (See Fig. 3, Col. 5, lines 15-30), and

ii. an inbound packet buffer (245) using SDRAM (See Fig. 4, Col. 9, lines 18-23, as a PDU queuing memory storage portion) for holding IP packets (PDUs) pending processing in determining at least an output port (210) from the plurality of data ports,

to switch the IP packet (PDU) to whereby the arrangement reduces PDU discard instances at the data network node by inbound queue manager (240) to enable the discrimination of IP packets (PDUs) associated with well-behaved data flows from IP packets (PDUs) associated with misbehaving data flows prior to selectively queuing thereof (See Fig. 4, Col. 5, line 47 to Col. 6, line 5).

Regarding claim 24, Wilford et al. further teach the steps of

f. transmitting the IP packets (PDUs) via an output data port (210) of the data network node (See Fig. 6, Col. 5, line 64 to Col. 6, line 5), and

g. emptying queues by dequeue circuit (420) in the inbound queue manager (240) (deallocating resources used by the transmitted IP packets (PDUs) whereby the storage of the received IP packet (PDU) in the temporary memory storage portion prior to header inspection provides for a qualified determination to be made in discarding IP packet (PDU) (See Fig. 4, Col. 5, lines 47-60).

Regarding claims 2 and 25, Wilford et al. further teach that the input FIFO (315 as temporary memory storage portion) has a memory size engineered to hold a single packet at line rate (accommodate a throughput of IP packets (PDUs) at the data network node) (See Fig. 3, Col. 5, lines 17-19) and as in the selectively queuing the IP packet (PDU) the method further comprises a step of dropping (discarding) the IP packet (PDU) if input FIFO (315 as memory storage resources) are not available to queue the IP packet (PDU) for processing (See Fig. 3, Col. 7, lines 32-38).

Regarding claims 3 and 4, Wilford et al. further teach that the memory size of the input FIFO (315 as temporary memory storage portion) is fixed or adjustable accommodating a complete single packet a line rate (data throughput) conveyed at the data network node and the data network node further comprising at least one data port (210) having an adjustable data transfer rate from low speed copper wire interface to OC192 optical fiber interface (See Fig. 3, Col. 4, lines 52-64).

Regarding claim 6, Wilford et al. further teach that the input FIFO (315, memory size of the temporary memory storage portion) which buffers the entire inbound packet at line rate is determined in the Lookup Unit (updated via a table lookup) to adjust the effective packet throughput (subsequent to modifying the data transfer rate of the at

least one data port having an adjustable data transfer rate) (See Fig. 3, Col. 8, lines 26-32).

Regarding claim 7, Wilford et al. further teach that THE effective packet throughput rate is adjusted by inbound rate limiter (230) wherein the committed access rate (CAR) circuit (330) checks a number of input CAR rules (a higher level protocol monitors data throughput at the data network node) to ensure that a particular, predefined rate is provided to certain packets identified by one or more header fields and buffer the entire inbound packet at line rate (adjusts the memory size of the temporary memory storage portion in relation to an aggregate data throughput rate of the data network node) (See Fig. 3, Col. 8, lines 26-43).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,347,234 ("Wilford et al. ") in view of US patent 6,298,340 ("Calvignac et al.").

Regarding Claim 5, as discussed above, Wilford et al. teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

"the memory size of the temporary memory storage portion is modified via a management console associated with the data network node".

Calvignac et al. teach a system and method for traffic management in a communications network using a console at the control point (12 as management console) for switch/router (10) (See Fig. 1, Col 4, lines 15-23) wherein the keyboard inputs the rule/constrain database into the CPU (22) (See Fig. 2, Col 4, lines 54-58).

A person of ordinary skill in the art would have been motivated to employ Calvignac et al. in Wilford et al. in order to obtain a data network node and to take advantage of inputting the rule/constraint database from a management console associated with the data network node in claim 5.

The suggestion/motivation to do so would have been to use a console at the control point (12) for switch/router (10) to input the database into the CPU (22), as suggested by Calvignac et al. in See Fig. 1, Col 4, lines 54-58. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Calvignac et al. with Wilford et al. to obtain the inventions specified in claim 5.

Allowable Subject Matter

7. Claims 8-23, 26-33 and 36-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

Examiner's Statement of Reasons for Allowance

8. The following is an examiner's statement of reasons for allowance:

The prior art along or in combination fails to teach or make obvious the limitations that specifically comprises:

“the PDU queuing memory storage portion further comprises a Classes-of-Service (CoS) PDU queuing portion including a plurality of reserved CoS processing queues, each CoS processing queue holding, while pending processing, PDUs associated with a one of a plurality of classes-of-service supported at the data network node in providing support for Quality-of-Service guarantees ensuring the availability of minimum memory storage resources for data flows at the data network node” as recited in the dependent claim 8,

“the PDU queuing memory storage portion further comprises a shared memory-pool portion holding, while pending processing, PDUs associated with data flows conveying PDUs at data rates above reserved data rates in providing QoS guarantees” as recited in the dependent claim 13,

“the PDU queuing memory storage portion further comprises an input port PDU queuing portion including a plurality of reserved input port processing queues, each input port processing queue holding, while pending processing, PDUs associated with a one of a plurality of input data ports of the data network node providing additional storage for PDUs associated with data flows conveying PDUs via the input port whereby protection against blocking is provided for data

flows conveyed via the input port from misbehaving data flows conveyed via other congested input ports” as recited in the dependent claim 15, and “the PDU queuing memory storage portion further comprises a Classes-of-Service (CoS) PDU queuing portion including a plurality of reserved CoS processing queues, each CoS processing queue holding, while pending processing, PDUs associated with a one of a plurality of classes-of-service supported at the data network node in providing support for Quality-of-Service guarantees ensuring the availability of minimum memory storage resources for data flows at the data network node” as recited in the dependent claim 26.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER

3/21/05